2. The question of the patient lying on the affected side has been mentioned. If the support is placed under this side lessened respiratory motion results, but without it the lower side is opened by the accordion action of the ribs and the patient uses that side more than the upper lung, which is on the smaller convex arc of the two. This little point should always be borne in mind when suggesting postural repose.

3. We are all agreed as to the benefit of artificial pneumothorax and, as has been said, its use before too long a period of waiting will save many lives. The French have used bilateral pneumothorax to advantage in a considerable number of cases. Of course, its technique is more dangerous and it is necessary to have the first side in not too severe a degree of collapse when the other side is started because if spontaneous pneumothorax should result on the second side serious effects might ensue.

4. A further benefit in tuberculous empyema has been the use of five per cent gomenol in either sterile petrolatum or olive oil. In certain instances it has healing influence upon the pleura and when the acuteness of the infection has subsided it may be used to fill the whole thoracic cavity on that side, thereby producing oleothorax.

5. Heliotherapy is of considerable value in treating extra pulmonary tuberculosis, combined with a strict and rigid regimen, but the dangers are so many when used in pulmonary tuberculosis that I feel it should be avoided.

6. Phrenic paresis or evulsion helps to bring about local lung rest in those cases where pneumothorax is impossible and, coupled with thoracoplasty, has certainly offered avenues of hope to many who otherwise would have died. A careful selection of these cases is, needless to say, a most important factor in the obtaining of good results.

ACUTE PULMONARY EDEMA DURING PREGNANCY AND LABOR*

REPORT OF CASES

By HARRY K. BONN, M. D.
Los Angeles

DISCUSSION *by W. Clifford McKee, M. D., Los Angeles; Henry A. Stephenson, M. D., San Francisco; Walter B. Hill, M. D., Long Beach.*

PULMONARY edema as a terminal complication of eclamptic cases is fairly common. A pulmonary edema of sudden onset, with a rapidly fatal termination, without convulsions or coma, occurring during pregnancy or after labor has begun, is, however, somewhat rare. Very few cases are recorded in the literature, and many textbooks fail to mention the subject; those that do dismissing it with scant mention.

Edema of the lungs is, of course, to be feared in cases of chronic cardiac disease, and edema or pneumonia may appear during eclampsia, usually with a fatal termination. The type of pulmonary edema under discussion is not related to the terminal phase of an eclampsia, wherein cardiac disease is the prime etiologic factor.

SURVEY OF CASES IN LITERATURE

The writer has been able to find only five recorded cases of acute pulmonary edema, occurring either during pregnancy, during labor, or shortly after labor had been completed. McIlwraith and Scott [1] reviewed the literature from 1903 to 1918 and could find but a single article, that of Pouliot,[2] relative to this clinical picture. McIlwraith and Scott in 1918 reported two cases of acute pulmonary edema during pregnancy. Icasalegui [3] contributed a report of two cases in 1919, one occurring during labor, the other during the puerperium. Corbin[4] in 1922 added the report of a case where the edema appeared shortly after labor was completed. He was privileged to see this patient in a later labor with reappearance of the edema.

K. C. McIlwraith and W. A. Scott quote Pouliot, who writes concerning edema of the lungs complicating pregnancy. Pouliot declared that pulmonary edema is one of the most serious complications of pregnant women with cardiac lesions. Symptoms reach a crisis only after the efforts of delivery. This author believes that "the condition is due to the hypertension of the lesser circulation resulting from a very narrow mitral stenosis." He warns especially against the induction of premature labor during an attack, since not infrequently attacks may occur during comparatively good health and before labor.

The possibility of the condition being a manifestation of the toxemia of pregnancy is admitted. E. Centenaro considers all pulmonary complications during pregnancy up to the time labor begins as being due either to the different intoxications (renal or hepatic), or to the infectious diseases or to cardiac pathology.

Albert, aside from the infectious diseases and the various intoxications, says that acute pulmonary edema may be produced by "purely mechanical causes," that is, a spasm or cramp of the ventricles, as described by Grossman and Huchard.

Within the realm of possibility must be considered an embolus or a shower of emboli as causative factors, especially in those cases wherein pulmonary edema has followed shortly after labor has begun or shortly after its completion.

REVIEW OF CASES IN THE LITERATURE

The paucity of reported cases seems to warrant a brief abstract of the reported cases in order to illustrate the various types. McIlwraith and Scott of Toronto report two cases of pulmonary edema of sudden onset and quickly fatal termination, occurring at the sixth and eighth months of pregnancy. These cases were private patients, but were each seen by both McIlwraith and Scott.

REPORT OF CASES

CASE 1.—A primipara of forty-two years of age whose blood pressure was 140 and whose pelvic measurements were normal. The urine was examined every two weeks and was negative. The last menstruation had begun October 4. On March 29, albumin was negative and the systolic pressure was 142. A large amount of albumin and a pressure of 240 was present on April 10, this date being approximately the end of the sixth month of pregnancy. The patient claimed to be feeling in the best of health and was much annoyed when informed that she must go to the hospital at once and not to the theater as she had planned. She did confess to having had a slight head-

* Read before the Obstetrics and Gynecology Section of the California Medical Association at the fifty-eighth annual session at Coronado, May 6-9, 1929.

ache for the past two days. There were no eye symptoms or nausea, but slight edema of the feet and ankles was present. Before entering the hospital at 7 p. m., she developed pain under the angle of the right scapula. Five hours after entering the hospital she vomited frothy, bloody fluid, and was in great distress from the extreme dyspnea. Deep cyanosis was present. Both sides of the chest were full of bubbling râles, and bloody fluid was running from both the nose and the mouth. Dullness was present both in front and behind to the levels of the clavicles. The blood pressure was 160. The basilic vein was opened but only a small amount of thick, almost black, blood was obtained. Oxygen was given subcutaneously. The patient died at 3 a. m., three hours after the onset of the edema. Autopsy could not be obtained.

* * *

CASE 2.—A II para, age thirty-five. Careful examination failed to reveal any demonstrable cardiac lesion, although attacks of faintness years before had been thought to be due to heart disease. Bimonthly urinalysis failed to show albumin. At the eighth month considerable albumin, granular casts, and many bacilli were found. Systolic pressure was 210 and a slight edema of the feet was present. She was sent to the hospital and the usual measures instituted.

At 7:30 p. m. the patient was sitting up in bed chatting with her husband and feeling quite well. Fifteen minutes later she was seized with sudden coughing and dyspnea and choking. When McIlwraith arrived fifteen minutes later her distress was extreme and marked cyanosis was present. Large bubbling râles were heard on both sides of the chest, the patient being conscious and rational. Venesection was done, sixteen ounces of free flowing blood being removed. Morphia and camphor in oil were given. Three hours after the onset a cesarean was proposed but a skilled anesthetist refused to give an anesthetic. Therefore the membranes were ruptured and she was permitted to breathe oxygen. Her condition improved but she vomited large quantities of clear fluid during the night. However, by 12 noon, extreme dyspnea had reappeared and blood-stained frothy mucus streamed from her nose and mouth. Cesarean section, under gas and local anesthesia, was done at 3:30 p. m., a living child being delivered. The mother's condition did not improve and she died five days after the onset of the pulmonary edema.

* * *

CASES 3 and 4.—Icasalegui reports two cases of acute pulmonary edema occurring during labor and in the puerperium. The first case presented the edema during the expulsive period, at which time uterine movements were paralyzed. Forceps were applied, the fetus extracted and, after 350 grams of blood had been withdrawn, the edema subsided.

In the second case the pulmonary edema promptly subsided after withdrawing 400 grams of blood.

* * *

CASE 5.—Corbin of Mendoza, Argentine Republic, reports a case of acute pulmonary edema occurring after the conclusion of labor. The patient was twenty-four years of age, para II. The first labor had been normal. During the second pregnancy no disease of the heart, the kidneys, or other organs had been found. The second labor resulted in a spontaneous delivery and, about ten minutes after the placenta had been expelled, acute pulmonary edema appeared with the customary symptoms and physical findings. Morphin was administered and turpentine stupes applied to the chest and back. After coughing up blood-stained fluid for two or three hours, the fluid became rose-colored and finally clear. The lung findings disappeared and the patient was up and about in ten days.

Corbin first saw this patient in September 1915, and examined her frequently in the next five years. No cardiac, renal, or other pathology could be found. In July 1920 the patient consulted him, as she was about three months pregnant. Corbin feared a recurrence of the pulmonary edema and sent her to several eminent colleagues in Buenos Ayres for consultation. All were agreed that the patient was perfectly healthy and laughed at the idea of future attacks of pulmonary edema. The patient had a persistent and very great fear of an attack and insisted that she would die in her labor.

In November she had an attack of edema lasting two hours, relief being secured with morphin. The question of inducing premature labor was discussed, but the morphin had so quickly relieved the condition that it was decided to wait. An x-ray of the chest was taken and pronounced normal. On December 12 two more attacks occurred of two hours' duration, relieved by the same treatment. On December 14 another attack occurred and again relief was secured.

Blood pressure was 110, the urine normal on December 21. Every four or five days she would have a two-hour attack of pulmonary edema, always coughing and expelling bloody and frothy fluid, and always relieved by morphin. On January 2, 1921, an attack began about midnight; morphin, stupes, oxygen, and all other measures were without avail, and the patient gradually became worse and died at 6 a. m., six hours after the attack began. An autopsy was not permitted.

REPORT OF CASE BY AUTHOR

My personal case was referred to me by Dr. G. D. Conover, to whom I am indebted for the history and physical findings.

CASE REPORT.—Mrs. D. M., age twenty-two, married two years, primipara. So far as she knew she had never been ill nor had she ever consulted a physician. She had been an orphan since she was four years old.

The patient was examined by a physician in a near-by city who assured her all was well. She later moved to Los Angeles and consulted Doctor Conover January 21, 1926. Menstruation first appeared at thirteen years of age, was of the twenty-eight day type without any pain. Her last menstruation began May 31, 1925, and lasted three days. Quickening occurred October 30, 1925, according to the patient. The estimated date of labor was about March 10, 1926. The patient was five feet three inches in height, stockily built, weighing 135 against a norm of 130. No cardiac pathology could be found and the lungs were clear and free from râles. There was no abnormal thyroid enlargement. Blood pressure was 130/80; pulse 80, of good volume. No toxic symptoms were noted. The fetal heart sound was located in the right, lower quadrant, rate 130. No external pelvic measurements were made, but vaginal examination indicated an ample pelvis. The perineum was intact and the cervix soft. The urine was negative for albumin.

On February 2, blood pressure was 130/85; pulse was 80; urine was negative for albumin. No toxic symptoms were present. On February 9, pressure was 130/90, and slight edema of right foot and leg was present and a trace of albumin was found in the urine. On February 10, pressure was 135/85; urine was negative for albumin. Edema of the leg had disappeared. On February 17, pressure was 130/80; trace of albumin was found again in the urine; edema of right foot was present. On February 24, pressure was 135/85; albumin had disappeared, but right foot was edematous. On March 1, pressure was 130/90; patient felt well, no albumin was present in urine, and the edema had disappeared. No headache or eye signs were noted during this time.

On the morning of March 3, 1926, she had a few cramplike pains and, believing herself to be in labor, entered a maternity home. About 11:30 a. m. she had a rather severe pain and the amniotic sac ruptured, considerable fluid being lost. Within a few minutes frothy, blood-stained fluid began to pour from both the nose and mouth. She was deeply cyanosed—face,

lips, and nails; was unable to lie down and dyspnea was extreme. Doctor Conover saw her at 12 noon. I saw her at 12:30 p. m. The picture was unchanged. She was sent to the hospital, sitting upright in the ambulance since it was impossible for her to lie down because of extreme dyspnea.

On hospital entrance, temperature was 98 degrees; pulse, 130 to 145; respirations, 36 to 45. The blood-stained fluid streamed from her nostrils and mouth, and she was unable to lie flat. She was placed in an exaggerated Fowler position. It appeared that each minute would be her last. Blood pressure was 164/110. Nausea was present. She had been given morphia, one-fourth grain, before being moved to the hospital, with almost complete cessation of her labor pains. Between 2 and 6 p. m. she received digitalis, morphin and atropin at different times. She was extremely restless, turning from side to side and sitting bolt upright in the bed most of the time.

At 6 p. m. she seemed in a little better condition; at least at this time she could lie almost flat in the bed. Notes on a consultation with an obstetrician, Dr. M. H. Ross, were as follows: "Having irregular uterine contractions every five to ten minutes apart, lasting from ten to thirty seconds. Bubbling râles in chest, as heretofore noted. Expectorating blood-stained fluid; likewise identical fluid streaming from nose. Right heart dilated; pulse 135, irregular and of soft quality. Blood pressure was 124/80. Marked cyanosis and marked dyspnea. Opinion: Pregnant in labor at term; dry labor; dilated right heart; acute pulmonary edema. Fetal heart tones very weak, but believe child alive. Rectal examination shows about one finger dilatation. Concur in advisability of immediate cesarean section under local anesthesia."

Accordingly a cesarean section was done at once under one-half of one per cent novocain anesthesia, a dead child being delivered.

Section was not especially difficult although it was necessary to keep the patient in a modified Fowler position during the operation. She was returned to bed in about the same condition as before operation, pulse 120, respiration 40. The blood-stained fluid continued to pour from her nose and mouth.

At 10:30 p. m. of the day of the operation, a catheterized specimen showed 1016, acid, cloudy, yellow, measurable albumin, sugar negative, indican, acetone and diacetic acid one plus, numerous hyaline casts, fine and coarse granular casts, and a few pus and red blood cells.

At 4 a. m., temperature was 103.2; pulse, 140; respiration, 40. Three hours later the patient gave two gasps and died. Autopsy could not be obtained.

COMMENT

The salient points as regards the two cases of McIlwraith and Scott were: pulmonary edema of sudden onset occurring at the sixth and eighth months of pregnancy, the outstanding feature being a tremendously high blood pressure. Apart from the urinary findings, little else could be discovered before the onset of the acute symptoms. In the second case there was considerable edema of the feet. A preëxisting cardiac lesion was not found in either case.

McIlwraith and Scott do not consider that their cases can be considered eclamptic because these patients did not have convulsions, which they consider essential for eclampsia. Nor did these patients die in coma without convulsions, which some observers consider sufficient to classify the case as eclamptic. Hence McIlwraith and Scott consider that this condition of pulmonary edema is due "to a profound toxemia giving rise to a high blood pressure which finds its outlet in a spot of weakened resistance in the lung." They further remark that the blood pressure is the best indicator of the severity of a preëclamptic toxemia and that the possibility of pulmonary edema must be considered in those cases presenting albuminuria and high blood pressure.

In the cases of Icasalegui the cause of the pulmonary edema was neither in the lung nor heart nor kidneys. His second case presented arterial hypertension as shown by the sphygmamonometer. The original article of Icasalegui is not obtainable and the meager data of his two cases were taken from an abstract of a prior abstract.

Corbin believes that the cause of the pulmonary edema in his case was "spasm of the left ventricle" (Huchard). He states it could not have been due to intoxication, since careful examination of the heart, kidneys, and other organs failed to show disease and also morphin cured the patient in several attacks, which would not have occurred had intoxication been the cause.

The case herewith reported did not present a blood pressure extraordinarily high and the albuminuria and edema of the feet were of a transitory type. The prompt appearance of the acute pulmonary edema, after the amniotic sac ruptured, suggests a causal relationship perhaps, as regards either an embolus or a shower of emboli. The cause of the edema may have been a spasm of the ventricle as suggested by Huchard and Corbin. I do not feel that the eclamptic state was responsible. It is to be much regretted that an autopsy was not obtained in any of the four cases dying of this disease.

As regards treatment, Corbin insists that morphin should relieve the edema promptly if no intoxications, renal or hepatic, especially are present. Icasalegui, on the other hand, states that the only valid treatment of acute pulmonary edema, whatever its cause, is a general blood letting to the extent of 300 or 400 grams. Blood withdrawals, according to Ballard, of a medium grade of 500 grams produce an immediate and lasting fall of the arterial pressure in elevated hypertension of the renal type, as well as a diminution of the work of the cardiac muscle, shown by the immediate reduction of tension. The amount of the fall of arterial pressure does not depend on the quantity of blood withdrawn and the effect continues for several days.

SUMMARY

Acute pulmonary edema carries a high mortality during pregnancy, this mortality increasing as term is approached and likely reaching its peak during labor. Seven reported instances (six patients) of acute pulmonary edema occurring during pregnancy, labor, or the puerperium are cited. There were four deaths, one at the sixth and one at the eighth months of pregnancy, one very near to term, and one during the first stage of labor. Of the three patients surviving the edema, one occurred during the expulsive stage

of labor, the other two during the puerperium. The comparative rarity of acute pulmonary edema during pregnancy, labor, and the puerperium accounts for the extremely small number of reported cases.

The following premises seem logical. A patient who has survived a previous attack of acute pulmonary edema occurring during pregnancy, labor, or the puerperium, and who has again become pregnant is entitled to a therapeutic abortion. A tubal sterilization at the time of the abortion or later, as circumstances dictate, is also indicated. The choice of either the abdominal or vaginal routes for the performance of the tubal sterilization is a matter of personal preference.

When acute pulmonary edema occurs during pregnancy or labor and the blood pressure is not unduly high, morphin is indicated. Under like conditions but with a high blood pressure, venesection is to be done. With either of the preceding conditions present, at the first sign of improvement, slight though it may be, the uterus should be emptied.

For those cases near term or in labor, the procedure of choice is a classic cesarean section under local anesthesia, performed at the slightest evidence of improvement in the patient's condition, and at the latest, not longer than four to six hours after the onset of the edema. It is questionable whether any delay is justifiable in these cases. Delay in emptying the uterus certainly minimizes the chances of securing a living babe and the possibility of the mother's recovery.

520 West Seventh Street.

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DISCUSSION

W. Clifford McKee, M. D. (1930 Wilshire Boulevard, Los Angeles).—Doctor Bonn is to be congratulated upon his presentation of such an interesting obstetrical complication. I have not had the opportunity of seeing a patient who has had acute pulmonary edema except with a coexisting toxemia.

Any pulmonary disease carries with it a serious import during the pregnant or the puerperal state. When pulmonary edema appears, either with a toxemia or independent of it, the condition is of almost fatal consequences.

Generally speaking, one presupposes cardiac failure when acute pulmonary edema develops. In the absence of cardiac disease it is usually thought to be due to a toxemia affecting the heart or possibly the pulmonary circulation. This need not be an eclampsia but some other toxemia that does not fit the usual picture. It is conceivable that a localized allergic reaction could be responsible, for it has been demonstrated that placental fragments are found in the lungs of pregnant women.

In reviewing Doctor Bonn's reputed cases, one is impressed by the fact that some of these presented evidences of a toxemia; could it not be possible that all of them were dependent upon some type of toxemia, for it is possible for eclampsia to develop with but little of the usual evidence. Doctor Bonn's personal case did show some albumin and edema, and it is possible that a toxemia was present. It would have been interesting to have had electrocardiographic studies of the case as well as blood chemistry findings. They might have thrown some light upon the condition.

The patients that I have seen with acute pulmonary edema were those who had an eclampsia. My experience has been that the best results were obtained with the intravenous use of strophanthus and atropin or adrenalin. If the patient was restless, morphin was also given.

Henry A. Stephenson, M. D. (490 Post Street, San Francisco).—One concludes from Doctor Bonn's article that acute pulmonary edema is a very rare condition since only six cases have been reported. Indeed most obstetricians have never seen the condition except perhaps as a terminal finding in patients dying from toxemia. Osler mentions the fact that there are cases of recurring attacks of pulmonary edema without obvious cause. Corbin's case seems to fall in this group.

Welch advanced the theory that the edema is the result of transudation from the lung capillaries due to disproportionate weakness of the left ventricle. Cardiac failure, then, should account for the majority of cases, though the exact lesion is not always demonstrable.

I have seen only one case of pulmonary edema not associated with demonstrable toxemia. This was in a primipara who had a short labor terminated by low forceps for fetal heart irregularity under ether anesthesia, which was taken poorly. Twelve hours later acute pulmonary edema ensued and, in spite of atropin, morphin, and blood letting, went on to a fatal termination. No autopsy was obtained, therefore an incipient postanesthetic pneumonia cannot be ruled out.

Walter B. Hill, M. D. (420 Cedar Avenue, Long Beach).—I have during the past two years had but two cases of pulmonary edema complicating pregnancy. A short presentation of these cases follows:

Case 1.—Mrs. C. G., age thirty-one, white. Working diagnosis: Parturition normal, R. O. P., with hypertension and albuminuria. (Doctors Fred Clarke and Frank Settle were with me on this case.) This patient entered the hospital by ambulance at 6 p. m. October 28, 1928. She had a grave toxemia of pregnancy, complicated with a pulmonary edema. She was a German girl, weighing 158 pounds, a primipara, thirty-one years of age. Her blood pressure was 200/130 when she entered the hospital. She was given one-sixth grain of morphin, followed in twenty minutes by another one-sixth and one-seventieth grain of atropin. A cesarean section was performed within an hour.

Following the cesarean, blood pressure was 160/100. Pulse rate remained about 100. Within twenty-four hours her nitrogen was normal and the albumin, which was marked on entrance to the hospital, was markedly less, and there were few casts. The babe delivered was a five and one-half pound girl in very fair condition.

On November 16, 1928, the patient left the hospital by ambulance. She had progressed beyond expectation. Pulse rate was 100; blood count was improved; and N. P. N. was normal. All medication was discontinued following the delivery and routine obstetrical care was given this patient. The babe was on a formula from the beginning.

Case 2.—Mrs. L. J. Patient was a primipara, weighing 141 pounds, and was sixty-four inches in height. Age, thirty-two years. She had a history of former acute tuberculous infection of the chest. She had a mitral stenosis, and a rather marked tachycardia. Her hemoglobin was 50 per cent, her red count 3,000,000, and her leukocytes 11,800. She had a trace of albumin in her urine, but no casts.

Patient entered the hospital in active labor at 4 p. m., December 18, 1929. There were no symptoms of oncoming edema at first. At 9 a. m., on the 19th, the patient began to expectorate bloody sputum and to vomit a frothy, bloody fluid, and rapidly became cyanotic and in great distress from extreme dyspnea.

Dr. Fred Clarke was called in consultation. Both sides of the chest were filled with bubbling râles and the patient appeared in a desperate condition. At this time she had progressed fairly well in labor, the head being in the low midplane, and cervix was dilated about three fingers. She was given oxygen and a quick forceps delivery was done.

This patient was given morphin grains 1/6 and atropin grains 1/100 at onset of the pulmonary edema, and following delivery a digifolin ampoule was given every four hours, and atropin grain 1/75 twice during the forenoon. After twenty-four hours, tincture of digitalis minims 15 was given every six hours. Patient remained medically under Doctor Clarke's care for weeks following her delivery. Her babe was in good condition and was at once put on the bottle.

I believe that these cases should be treated with morphin, atropin, and digitalis, and that the uterus should be emptied just as soon as possible. They are, fortunately, rare but always seriously grave cases.

❦

Doctor Bonn (Closing).—I have discussed the subject of pulmonary edema during pregnancy with several colleagues and their remarks are reiterated here. Souther of Cincinnati has suggested the use of adrenalin chlorid, but the dose is one drop in saline solution every five minutes until either a beneficial effect is observed or until a maximum of fifteen drops in all has been given.

Arnold Schwyzer of St. Paul has observed one case in which an attack occurred during the first pregnancy and again during a second pregnancy, the patient surviving a further attack during the delivery. Schwyzer states that he regards pulmonary edema as an angioneurotic condition and that it is quite likely due to some form of toxemia.

Kerwin of St. Louis has seen two cases in which neither cardiac disease nor toxemia was present, both recovering. He was fortunate in securing an x-ray of the chest during the attack in one case, and it may be of interest to note that the roentgenologist reported an increase in the peribronchial markings, especially in the hilus region over the lower lobe. The markings did not extend into the apices, and were considered an important point in the diagnosis of edema.

Edmund Andrews of Chicago, while studying alkalosis through experimental work on dogs, found that a dose of alkali that would not affect a normal dog would produce almost fatal edema of the lung, with coughing up of mucus, in a dog with acidosis. Andrews quotes this occurrence, which was deliberately repeated after its accidental finding, as a possibility in some of these acute pulmonary edemas in the later stages of pregnancy. He suggests that the mechanism may be possibly as follows: Under alkalosis there is a more or less dilution of the blood. When that amount of filtrate combined with the protein in the blood vessels is suddenly freed from its chemical state by alkalinization, it has to makes its way into the tissues by some mechanism, and the lungs are likely the available mechanism. It makes its way into the alveoli and is coughed up.

I do not possess sufficient ability to paint the dramatic picture of pulmonary edema, but a novelistic description of the attack and death from pulmonary edema is to be found in Emile Zola's Fecondite.

ESTHETIC PLASTIC SURGERY

By H. O. Bames, M. D.
Los Angeles

Discussion *by George Warren Pierce, M. D., San Francisco; Howard L. Updegraff, M. D., Hollywood; William S. Kiskadden, M. D., Los Angeles.*

GOOD looks are an asset of high economic value. In the modern business world, attractive personal appearance may rank equal or even higher than specialized ability. Marred or otherwise unattractive features represent a serious handicap. The striving for enhancement or maintenance of good looks is therefore evidence, not of an idle cult of beauty, but rather of a serious determination, born of necessity, to let no remedial defect stand between success and failure in the struggle for existence. Legitimate demand for this work being thus proved, the problem arises as to who is to meet the request for work of this kind.

It is a time-honored tradition of surgery that its one and only mission be the conservation of life or the restoration of function, with the paramount concern of securing this result in the shortest possible time. Of late, however, another factor has entered the equation, particularly in operating on exposed parts of the body, and judging by the present trend of dress, the field of observation is decidedly increasing. A blemish on the body may have a disturbing influence on the peace of mind of the individual and hence entitles the patient to relief. This holds good whether the blemish be congenital, acquired accidentally, or resulting from surgical intervention.

TWO TYPES OF PLASTIC SURGERY

Plastic surgery may be divided into two branches. The first type is reconstructive and has for its prime object restoration of function and only secondarily, restoration of appearance. It deals with gross deformities and involves all the elements of major surgery in its risks as well as technique.

The second type is esthetic plastic surgery, which has to do with correction of imperfection in figure and features and the creation of normalcy in respect to symmetry of contour and harmony of proportions. Its surgical problems are really minor ones. We frequently hear the expression "a good cosmetic result" when we really mean esthetic, for cosmetic refers to color and complexion only; things which may be purchased in the drug store or at the beauty shop, but not in the operating room.

QUALIFICATIONS REQUIRED FOR ESTHETIC PLASTIC SURGERY

1. Artistic talent, so that defects may be properly evaluated.

2. Sculptural ability that features may be harmoniously blended, a sense of proportion being of greater value than the measuring rod.

3. Adequate training in anatomy so that the contemplated alteration may be physiologically sound and functionable.